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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,479	09/23/2005	Jun Kanega	1217-052603	1967

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EXAMINER
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HU, HENRY S

ART UNIT	PAPER NUMBER
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1796

MAIL DATE	DELIVERY MODE
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11/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/550,479

Applicant(s)

KANEKA ET AL.

Examiner

Henry S. Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Election of September 4, 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 5-7 and 10-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-16 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This Office Action is in response to **Election** filed on September 4, 2007. **Applicant's election of Group I (Claims 1-4 and 8-9) without traverse** is acknowledged. Some improper languages in specification including abstract are corrected, while no claim is further amended, cancelled or added (see pages 3-6 of Remarks). As discussed earlier, USPTO has received **Pre-Amendment** and **two IDS** (a total of 3 pages) filed on September 23, 2005, October 16, 2006 and April 2, 2007 respectively. With such a pre-amendment, **Claims 3-5 were amended**; no claim was cancelled, while new Claims 8-16 were added. To be more specific, improper multiple dependency on dependent Claims 3-5 are removed.

**Claims 1-16 are now pending** with only **one** independent claim (Claim 1), while the nonelected **Claims 5-7 and 10-16 (Group II)** are withdrawn from consideration. An action follows.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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**Claims 2-3 and 10-16** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) On **Claim 2** at line 2, the language of “wherein a **cationic surfactant and a water soluble organic solvent are used as a coagulating agent**” is indefinite. It is unclear whether a mixture of solvent and surfactant is needed herein, or just only one from solvent and surfactant. The Applicants need to clarify with the support from the specification. Otherwise, one having ordinary skill in the art may be thereby confused.

(b) On **Claim 3** at line 6 as well as on **Claims 10-16** at line 1, recitation of “**obtainable**” is vague and indefinite. It is unclear whether it has been obtained or not. The term “obtainable” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one having the ordinary skill in the art would not be reasonably apprised of the scope of the invention. See MPEP at 2173.05(b). The Applicants need to clarify with the support from the specification. Otherwise, one having ordinary skill in the art may be thereby confused.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. The limitation of parent **Claim 1** relates to *a process for preparing a fluorine containing copolymer by an emulsion polymerization method in the presence of a pH modifier wherein the pH modifier is aqueous ammonia.*

*See other limitations of dependent Claims 2-4 and 8-9.*

5. **Claims 1 and 4 are rejected** under 35 U.S.C. 102(e) as being anticipated by Tanaka et al. (US 6,703,461 B1).

Regarding the limitation of parent **Claim 1**, **Tanaka et al.** have disclosed a method of **aqueous emulsion polymerization to make a fluorine-containing elastomer** with reduced metal content (title; abstract; see “emulsion polymerization” at column 3, line 10-15). A pH control agent such as **ammonia** is applied in the course of polymerization (column 5, line 66 – column 6, line 6; column 9, line 26-37; column 10, line 54; column 15, line 48). Therefore, Tanaka clearly anticipates current limitation of parent Claim 1.

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6. Regarding **Claim 4**, anionic surfactant such as **salts of carboxylic acid having a fluorocarbon chain or a fluoropolyether chain** is preferably used (column 8, line 17-30).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. **Claims 2-3 and 8-9 are rejected** under 35 U.S.C. 103(a) as being obvious over Tanaka et al. (US 6,703,461 B1) in view of Bekiarian et al. (US 4,946,902) and Kitahara et al. (US 6,503,988 B1).

Regarding the coagulating agent mixture of **Claims 2 and 3**, the rejection over Tanaka set forth above for Claims 1 and 4 is incorporated here by reference. Tanaka has applied non-

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water-soluble organic solvent to be coagulating agent (column 11, line 9-23); many other type coagulating agents are also applied (column 6, line 2-5; column 10, line 17-29). Therefore, Tanaka is still silent about using a specific coagulating agent such as **a mixture of “a cationic surfactant” and “a water-soluble organic solvent”**. A combination of two references including **Bekiarian and Kitahara** may have taught such a subject matter.

9. **Bekiarian** teaches that aqueous dispersion made in the polymerization step can be isolated by several ways alone or in combination such as: (a) coagulated with agitation **with an electrolyte compound**, (b) gelled with agitating **with an electrolyte compound**, and (c) coagulated with addition of a water-immiscible liquid (column 7, line 32-37; column 6, line 1-20). With respect to the use of electrolyte compound, **Kitahara** teaches that **cationic surfactant** having a salt type formula similar to the claimed  $(R_4N)^+X^-$  can be used to **coagulate the latex after the polymerization** (column 3, line 5-7 and 44-50; column 4, line 12-54). With respect to the use of **water-soluble organic solvent to be with such a cationic surfactant**, **Kitahara** discloses that water-soluble organic solvent such as methanol or acetone may be added alone or together (column 4, line 61-63). By doing so, the polymer product can be effectively and conveniently coagulated, isolated and then dried.

10. In light of the fact that all involving references are dealing with coagulating the fluoropolymer from polymerization, one having ordinary skill in the art would therefore have found it obvious to modify Tanaka's process of coagulating step by applying or further including the addition of a mixture of salt-type cationic surfactant and water-soluble organic solvent as

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taught by **Bekiarian and Kitahara**. By doing so, the polymer product can be effectively and conveniently coagulated, isolated and then dried. Additionally, the whole process may be more effective.

11. Regarding **Claims 8 and 9**, anionic surfactant such as **salts of carboxylic acid having a fluorocarbon chain or a fluoropolyether chain** is preferably used by Tanaka (column 8, line 17-30).

### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a process for preparing a fluorine-containing copolymer, which is an emulsion polymerization method conducted in the presence of a pH modifier wherein the pH modifier is aqueous ammonia:

**US 6,720,360 B1 to Grootaert et al.** only discloses the preparation of various ultra-clean fluoropolymers by coagulating the polymer essentially without adding ions (abstract, line 1-4; title). Water-soluble organic solvent such as alkanol may be used to coagulate (column 14, line 61-64), while  $\text{NH}_3$ -generating agent may be added in the curing of nitrile-containing fluoropolymer (column 8, line 6-31). Additionally, the aqueous ammonia is not present in polymerization at all. Therefore, Grootaert fails to teach or fairly suggest the process limitation of present invention.



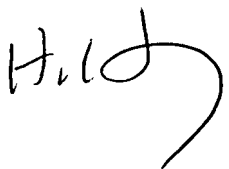
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13. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu** whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (571) 272-1119. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Peter D. Mulcahy/  
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November 19, 2007